

Program Requirements Document Subcontractor/Supplier	SURVEY EQUIPMENT CALIBRATION AND CONTROL	Identifier: PRD-5012 Revision: 1 Page: 1 of 7
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Manual: Subcontractor Requirements

Change Number: 72549

1. PURPOSE

This Program Requirements Document (PRD) identifies the minimum requirements for calibrating and controlling subcontractor/supplier-surveying equipment.

2. APPLICABILITY

This PRD applies to INEEL subcontractor/suppliers (see def.) when specified by a subcontract or purchase order.

Supplemental requirements may be specified for all or part of the work scope as determined to be appropriate by the contractor (see def.). The subcontractor/supplier shall implement the requirements of this PRD and all supplemental requirements, when and as specified by the subcontract or purchase order.

3. RESPONSIBILITIES

Performer	Responsibilities
Contractor	Calibrate subcontractor's survey equipment.
Subcontractor/Supplier	<p>Train personnel working to this procedure in accordance with PRD-5001.</p> <p>Submit calibration request and equipment to the contractor for calibration prior to initial use on the project.</p> <p>Tag and segregate "out-of-calibration" survey equipment</p> <p>Obtain recalibration at specified intervals or when calibration has been compromised.</p> <p>Obtain recalibration upon completion of the survey equipment's final use on the project.</p> <p>Perform periodic functional checks of survey equipment.</p> <p>Record each usage of survey equipment in the usage record.</p> <p>Document survey activities in survey field logbooks.</p> <p>Maintain original and backup copies of electronic survey data.</p>

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4. REQUIREMENTS

- 4.1 **Subcontractor/supplier** personnel responsible for operating, controlling, and/or calibrating construction surveying equipment shall be trained to the requirements of this PRD in accordance with PRD-5001, Training and Indoctrination.
 - 4.1.1 Training records shall include **subcontractor/supplier** personnel qualifications for operation and maintenance of optical survey equipment.
- 4.2 Survey equipment shall be stored, handled, and maintained:
 - A. in accordance with the manufacturer's recommendations
 - B. in a manner that ensures survey equipment integrity, accuracy, and precision
 - C. in a manner that prevents damage or degradation to the survey equipment and attached *calibration status indicators* (see def.).
- 4.3 Prior to initial use on each project, the **subcontractor/supplier** shall submit Form 432.49, **Subcontractor/Supplier** Request For M&TE Calibration Services, along with the following equipment to the contractor for calibration in accordance with PRD-5015, Control of Measuring and Test Equipment:
 - A. transits and theodolites
 - B. total stations
 - C. optical levels
 - D. electronic distance measurers (EDMs)
 - E. tapes/chains
 - F. level rods
 - G. tension handles
 - H. thermometers, barometers, and scales used to support survey work.
- 4.4 The **subcontractor/supplier** shall conform to calibration intervals established by the contractor and/or as specified by survey equipment manufacturer's instructions.

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- 4.5 If deemed necessary by the survey party chief, manufacturer, or the contractor, calibration frequency may be increased.
- 4.6 Unless otherwise approved by the contractor, contractor-specified survey equipment identified in this PRD shall be calibrated upon completion of its intended use.
- 4.7 Unless otherwise directed by the contractor, the [subcontractor/supplier](#) shall submit surveying equipment for final calibration no later than 10 working days after the final usage, or before the last day of the subcontract performance period, whichever occurs first.
- 4.8 Before initial use and at least biannually, the [subcontractor/supplier](#) shall perform basic functional checks for each of the following type of survey equipment.
 - 4.8.1 Transits and theodolites shall receive the following basic functional checks:
 - A. plate and telescope bubble check
 - B. cross hair check (vertical and horizontal checks to include collimation and trunion axis)
 - C. standards check (vertical axis)
 - D. eyepiece centering
 - E. optical plummet check
 - F. other checks and adjustments as recommended by the manufacturer's operation and maintenance manual.
 - 4.8.2 Optical levels shall receive the following basic functional checks:
 - A. level bubble check
 - B. cross hair check (horizontal)
 - C. line of sight check (two peg method)

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D. other checks and adjustments as recommended by the manufacturer's operation and maintenance manual.

4.8.3 EDMs shall receive the following basic functional checks:

A. horizontal distance check to a National Geodetic Survey (NGS) calibration baseline

NOTE: *The location of local baselines is available from the contractor.*

B. other checks in accordance with the manufacturer's operation and maintenance manual.

4.8.4 Survey tapes and chains shall receive the following basic functional checks:

A. check against a calibrated tape or an established baseline, such as the NGS calibration baseline

NOTE: *The location of local baselines is available from the contractor.*

B. corrections for temperature fluctuations, tension, slope, and sag compensated for in accordance with manufacturer's recommendations and/or industry standards.

4.8.5 Level rods shall receive the following basic functional checks:

A. check against a calibrated or functionally checked tape

B. if possible, a comparison to an equal standard while the level rod is fully extended and adjusted.

4.8.6 If required by the manufacturer or deemed necessary by the survey party chief or the contractor, the [subcontractor/supplier](#) shall perform more frequent functional checks and/or adjustments.

4.8.7 All functional checks performed by the supplier shall be recorded on Form 432.47, [Subcontractor/Supplier](#) Survey Functional Check Record.

4.9 [Subcontractor/supplier](#) survey equipment identified in this PRD shall be tagged out-of-service using Form 416.13, Out of Service-Calibrate Before Use, and reported to the contractor in accordance with PRD-5015, when:

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- A. calibration or functional check has expired or is found out-of-tolerance
- B. equipment will not calibrate
- C. equipment is noted as malfunctioning, damaged, or otherwise suspect.

4.10 Each usage of [subcontractor/supplier](#) survey equipment identified in this PRD shall be recorded on Form 432.48, [Subcontractor/Supplier](#) Survey M&TE Calibration Usage Record.

4.11 All [subcontractor/supplier](#) survey activities shall be documented in survey field logbooks.

4.11.1 Recorded information shall be neat, legible, and include, as a minimum:

- A. all pertinent information
- B. measurements
- C. observations
- D. benchmark references with applicable number
- E. equipment identification number
- F. survey date
- G. personnel performing work
- H. weather conditions.

4.11.2 Survey field logbooks shall be maintained on a daily basis with each entry signed and dated by the lead member of the survey crew.

4.12 Any [subcontractor/supplier](#) survey information collected with electronic data collectors shall be maintained on a stable computerized system with backup disk copies available.

4.13 Upon request by the contractor, the manufacturer's operation and maintenance manuals and instructions for all listed [subcontractor/supplier](#) survey equipment shall be made available to the contractor for reference.

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4.14 Documentation required by this PRD shall be completed, maintained, and stored in a single location in a secure and protected environment during the full performance period of the subcontract or purchase order.

4.14.1 All required documentation shall be legible, reproducible, free from erasure, correction fluid, and/or correction tape, and completed in black indelible ink only.

NOTE: *When a correction to documentation is required, a single line shall be drawn through the information to be deleted; additional information, if needed, shall be recorded adjacent to the information being changed; and the individual revising the document shall initial and date each entry adjacent to the correction.*

4.14.2 When completed, all blanks or blocks shall be filled in on each document. If there is no relevant information, the blank or block shall be marked "N/A."

4.14.3 All required documentation shall be made readily available for contractor review and/or audit.

4.14.4 All required documentation shall be submitted to the contractor when required by the subcontract in accordance with PRD-5003, Vendor Data Control.

5. DEFINITIONS

See LST-27, Glossary, for definitions of the following terms:

Calibration Status Indicator

Contractor

Subcontractor/supplier

6. REFERENCES

Form 432.47, *Subcontractor/Supplier* Survey Functional Check Record

Form 432.48, *Subcontractor/Supplier* Survey M&TE Calibration Usage Record

Form 432.49, *Subcontractor/Supplier* Request For M&TE Calibration Services

Form 416.13, Out of Service-Calibrate Before Use

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PRD-5001, Training and Indoctrination

PRD-5003, Vendor Data Control

PRD-5015, Control of Measuring and Testing Equipment

7. APPENDICES

None